

HOSPITAL PHYSICIAN®

OBSTETRICS AND GYNECOLOGY BOARD REVIEW MANUAL

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The *Hospital Physician Obstetrics and Gynecology Board Review Manual* is a peer-reviewed study guide for residents and practicing physicians preparing for board examinations in obstetrics and gynecology. Each manual reviews a topic essential to the current practice of obstetrics and gynecology.

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Ectopic Pregnancy

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Table of Contents

Introduction	2
Risk Factors and Pathogenesis	2
Clinical Presentation and Diagnosis	3
Management	6
Summary	10
References	10

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Ectopic Pregnancy

Thomas A. Molinaro, MD, and Kurt T. Barnhart, MD, MSCE

INTRODUCTION

Ectopic pregnancy refers to implantation of the embryo outside of the uterine cavity, typically (in 95% or more cases) within the fallopian tube, although unusual locations (cervix, ovary, abdomen, cesarean section scar) have been reported. Most ectopic pregnancies are located in the ampullary portion of the fallopian tube (80%), followed by the isthmic, fimbrial, or cornual (interstitial) segment.¹ Regardless of the site of an ectopic pregnancy, there is always risk for life-threatening rupture and hemorrhage.

Although the current incidence of ectopic pregnancy is difficult to estimate, the Centers for Disease Control and Prevention (CDC) reported a steady increase between 1970 and 1992 and an overall incidence of 2% in 1992 (more recent data are not available).² However, deaths due to ectopic pregnancy appear to be decreasing in the United States, presumably due to diagnosis before tubal rupture. According to CDC reports, 13% of all pregnancy-related deaths from 1970 through 1989 were associated with ectopic pregnancy³; this number dropped to 7% for the years 1991 to 1997.⁴

Advances in ultrasonography and rapid serum β -hCG assays have made it possible to diagnose ectopic pregnancy earlier and to implement conservative, nonoperative approaches to treatment. When surgery is indicated, laparoscopic approaches have significantly decreased the morbidity compared to laparotomy. Nevertheless, diagnosing a pregnancy of unknown location continues to be a challenge in early first trimester gestations. While some patients may present with symptoms that raise suspicion of an ectopic pregnancy, a large proportion of ectopic pregnancies are found in asymptomatic patients.

This manual begins with a review of risk factors for ectopic pregnancy, the recognition of which is important in raising suspicion and thus prompting evaluation for possible ectopic pregnancy. This is followed by a case-based discussion of currently recommended approaches to diagnosis and management of ectopic pregnancy.

RISK FACTORS AND PATHOGENESIS

The risk of ectopic pregnancy seems to be increased by factors that alter tubal morphology or function or that affect the hormonal milieu of early pregnancy, resulting in altered embryo transport. There is no evidence that abnormal embryos are more likely to implant in the fallopian tube.⁵ Early assessment of patients with risk factors increases the probability of diagnosing an ectopic pregnancy in a timely manner, allowing the use of less invasive, fertility-sparing treatments.

PREVIOUS ECTOPIC PREGNANCY

One of the most predictive risk factors is a previous ectopic pregnancy, which has been noted to increase the risk of a second ectopic pregnancy by up to 8 fold.^{6,7} Barnhart et al⁷ found that having 2 previous ectopic pregnancies increased this risk 16 fold. Epidemiologic studies of women with repeat ectopic pregnancies show that the risk is increased if the patient has tubal disease of infectious origin or infertility; this risk decreases after successful intrauterine pregnancies.⁸ Patients with a history of ectopic pregnancy should be counseled to seek medical care early in pregnancy.⁹

PREVIOUS SURGERY

Any prior abdominal surgery may predispose to ectopic pregnancy. In a study of patients with repeat ectopic pregnancies, 93% had previous abdominal surgery.⁹ The risk of ectopic pregnancy is increased among women who conceive after a failed tubal ligation.¹⁰ Marchbanks et al⁶ found a 4.5 fold increase in the risk of ectopic pregnancy among women who had previous tubal surgery. A recent meta-analysis placed this risk even higher.¹¹ When tubal ligation with electrocautery fails, the risk of ectopic pregnancy is increased 9 fold.¹² Other methods of sterilization increase the risk from 1.2 to 10 fold, with the risk remaining constant over time.¹³

SEXUALLY TRANSMITTED INFECTION

Sexually transmitted infections such as gonorrhea and chlamydia are well-known causes of tubal damage and infertility. The inflammation associated with upper genital